



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2017–0063; 4500030113]

RIN 1018–BC16

Endangered and Threatened Wildlife and Plants; 12 Month Findings on Petitions to List the Holiday Darter, Trispot Darter, and Bridled Darter; Threatened Species Status for Trispot Darter

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; 12-month petition findings.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to list three species, the holiday darter (*Etheostoma brevirostrum*), the trispot darter (*Etheostoma trisella*), and the bridled darter (*Percina kusha*), all freshwater fish native to Alabama, Georgia, and Tennessee, as endangered or threatened under the Endangered Species Act of 1973, as amended (Act). After review of the best available scientific and commercial information, we find that listing the trispot darter is warranted. Accordingly, we propose to list the trispot darter as a threatened species under the Act. If we finalize this rule as proposed, it would add the trispot darter to the List of Endangered and Threatened Wildlife and extend the Act's protections to the species. After review of the best available scientific and commercial information, we also find that listing the holiday and bridled darters is not warranted.

DATES: We will accept comments received or postmarked on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must

be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal:

<http://www.regulations.gov>. In the Search box, enter FWS–R4–ES–2017–0063, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, check the Proposed Rules box to locate this document. You may submit a comment by clicking on “Comment Now!”

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R4–ES–2017–0063, U.S. Fish and Wildlife Service, MS: BPHC, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see *Public Comments*, below, for more information).

FOR FURTHER INFORMATION CONTACT: Bill Pearson, Field Supervisor, U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office, 1208 Main Street, Daphne, AL 36526; telephone 251–441–5181; or facsimile 251–441–6222. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, if a species is determined to be an endangered or threatened species throughout all or a significant portion of its range, we are required to promptly publish a proposal in the Federal Register and make a determination on our proposal within 1 year. Listing a species as an endangered or threatened species and designations and revisions of critical habitat can only be completed by issuing a rule.

*This rule will propose the listing of the trispot darter (*Etheostoma trisella*), as a threatened species. This rule summarizes our analysis regarding status of and threats to the trispot darter.*

The basis for our action. Under the Act, we can determine that a species is an endangered or threatened species based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence. We have determined that the trispot darter is a threatened species based on a loss of habitat and connectivity (Factor A) due to urbanization, land use patterns, and drought.

Peer review. We have requested comments from independent specialists to ensure that we based our designation on scientifically sound data, assumptions, and analyses. Because we will consider all comments and information received during the comment period, our final determinations may differ from this proposal.

Supporting Documents

A species status assessment (SSA) team prepared SSA reports for all three darter species. The SSA team was composed of Service biologists, in consultation with other species experts. The SSA reports represent a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting each species. All three SSA reports underwent independent peer review by scientists with expertise in fish or amphibian biology, habitat management, and stressors (factors negatively affecting the species). The SSA reports and other materials relating to this proposal can be found on the Southeast Region website at <https://www.fws.gov/southeast/> and at <http://www.regulations.gov> under Docket No. FWS–R4–ES–2017–0063.

Information Requested for Proposed Rule to List Trispot Darter

Public Comments

We intend that any final action resulting from the proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from other concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. We particularly seek comments concerning:

- (1) The trispot darter's biology, range, and population trends, including:
 - (a) Biological or ecological requirements of trispot darter, including habitat requirements for feeding, breeding, and sheltering;
 - (b) Genetics and taxonomy;
 - (c) Historical and current range, including distribution patterns;
 - (d) Historical and current population levels, and current and projected trends; and

- (e) Past and ongoing conservation measures for the species, its habitat, or both.
- (2) Factors that may affect the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors.
- (3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to the species and existing regulations that may be addressing those threats.
- (4) Additional information concerning the historical and current status, range, distribution, and population size of the species, including the locations of any additional populations of the species.
- (5) Specific prohibitions and exceptions to those prohibitions that may be necessary and advisable for the trispot darter's conservation. We are considering publishing a more tailored proposed rule with provisions set forth under section 4(d) of the Act for public review and comment in the future.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act (16 U.S.C. 1531 et seq.) directs that determinations as to whether any species is an endangered or a threatened species must be made "solely on the basis of the best scientific and commercial data available."

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

If you submit information via <http://www.regulations.gov>, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on <http://www.regulations.gov>.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on <http://www.regulations.gov>, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Public Hearing

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received the dates specified above in **DATES**. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the *Federal Register* and local newspapers at least 15 days before the hearing.

Peer Review

In accordance with our joint policy on peer review published in the *Federal Register* on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we sought the expert opinions of appropriate specialists regarding the SSA report for each species, including the report for the trispot darter that informed this proposed rule. The purpose of peer review is to ensure that our listing determination is based on scientifically sound data, assumptions, and analyses. The peer reviewers have expertise in fish biology, habitat, and stressors to the species. We invite any additional comment from the peer reviewers during this public comment period.

Previous Federal Actions

The trispot darter was one of 29 fish species included in a March 18, 1975, notice of review published by the Service in the *Federal Register* (40 FR 12297). On December 30, 1982, the Service announced in the *Federal Register* (47 FR 58454) that the trispot darter, along with 147 other fish species, were being considered for possible addition to the Endangered Species List. On November 4, 1983, the Service published a notice in the *Federal Register* (48 FR 50909) that a status review was being conducted for the trispot darter to determine if the species should be protected under the Act. On November 21, 1991, we added the trispot darter to the candidate list as a category 2 species on the Candidate Notice of Review (CNOR) (56 FR 58804). The holiday darter was added to the candidate list as a Category 2 species in the CNOR on November 15, 1994 (59 FR 58997). Category 2 species were those species for which listing as endangered or threatened species was possibly appropriate, but for which biological information sufficient to support a proposed rule was lacking. However, the February 28, 1996, CNOR (61 FR 7596) discontinued recognition of Category 2 species, so the trispot and holiday darters were no longer considered candidate species after that date.

On April 20, 2010, we received a petition from Center for Biological Diversity and others to list 404 aquatic species in the southeastern United States, including the two aforementioned species as well as the bridled darter. In response to the petition, we completed a partial 90-day finding on September 27, 2011 (76 FR 59836), in which we announced our finding that the petition contained substantial information that listing may be warranted for these three darter species. We conducted a status review for each species.

Background

Trispot Darter

A thorough review of the taxonomy, life history, and ecology of the trispot darter (*Etheostoma trisella*) is presented in the SSA report.

The trispot darter is a freshwater fish found in the Coosa River System in the Ridge and Valley ecoregion of Alabama, Georgia, and Tennessee. This fish has a historical range from the middle to upper Coosa River Basin with collections in the mainstem Coosa, Oostanaula, Conasauga, and Coosawattee Rivers, and their tributaries. All known records of the trispot darter occur above the fall line in the Ridge and Valley ecoregion. Currently, the trispot darter is known to occur in Little Canoe Creek and tributaries (Coosa River), Ballplay Creek tributaries (Coosa River), Conasauga River and tributaries, and Coosawattee River and one tributary.

The trispot darter is a small-bodied, benthic fish ranging in size from 1.3 to 1.6 inches (in) (3.3 to 4.1 centimeters (cm)) as adults. The darter has three prominent black dorsal saddles, pale undersurface, and a dark bar below the eye. Scattered dark blotches exist on the fins' rays. During breeding season males are a reddish-orange color and have green marks along their sides and a red band through their spiny dorsal fin.

The trispot darter is a migratory species that utilizes distinct breeding and non-breeding

habitats. From approximately April to October, the species inhabits its non-breeding habitat, which consists of small to medium river margins and lower reaches of tributaries with slower velocities. It is associated with detritus, logs, and stands of water willow, and the substrate consists of small cobbles, pebbles, gravel, and often a fine layer of silt. During low flow periods, the darters move away from the peripheral zones and toward the main channel; edges of water willow beds, riffles, and pools; and mouths of tributaries. In late fall, this migratory species shifts its habitat preference and begins movement toward spawning areas; this is most likely stimulated by precipitation, but temperature changes and decreasing daylight hours may also provide queues to begin migration. Migration into spawning areas begins approximately late November or early December with fish moving from the main channels into tributaries and eventually reaching adjacent seepage areas where they will congregate and remain for the duration of spawning, approximately until late April. Breeding sites are intermittent seepage areas and ditches with little to no flow; shallow depths (12 in (30 cm) or less); moderate leaf litter covering mixed cobble, gravel, sand, and clay; a deep layer of soft silt over clay; and emergent vegetation. Trispot darters predominantly feed on mayfly nymphs and midge larvae and pupae.

Trispot darters can live a maximum of 3 years, but most individuals die after the end of their second year. Females lay approximately 300 adhesive eggs that attach to vegetation or rocky substrate. Once laid, the eggs are abandoned and incubate for 30 days. Upon hatching, the trispot darter spends approximately 41 days as larvae.

Holiday Darter

A thorough review of the taxonomy, life history, and ecology of the holiday darter (*Etheostoma brevirostrum*) is presented in the SSA report.

The holiday darter is a small, 2-in-long (5-cm-long) snubnose darter, so named because it is a colorful fish, with notable red blotches surrounded by white or yellow halos on the lower side of the body. Unique from similar species with which it co-occurs, the holiday darter has a distinct median red band across the generally blue-green anal fin in males in spawning color. The holiday darter is found in small creeks to moderate-sized rivers above the fall line in the Ridge and Valley, Blue Ridge, and Piedmont ecoregions of Alabama, Georgia, and Tennessee. Currently, the holiday darter is known to occur in parts of Shoal Creek, Conasauga River, Talking Rock Creek, Mountaintown Creek, tributaries of the Ellijay River, Amicalola Creek, and the Etowah River. The holiday darter prefers clear streams with riffles and shallow areas of rivers that contain boulders, cobble, and gravel substrate. While no complete life-history studies of the species are available, it is likely a benthic omnivore that eats aquatic insect larvae and microcrustaceans.

Breeding behavior begins in April and lasts through May. Females are followed by males as they select suitable spawning substrates of gravel, rock, or wood on which the pair orients vertically to spawn and attach eggs. Females have the potential to produce from 50–150 eggs over multiple spawning sites, and those eggs are then fertilized by the male, or multiple different males. No studies have been published on the lifespan of the holiday darter, but similar species live approximately 3 years.

Bridled Darter

A thorough review of the taxonomy, life history, and ecology of the bridled darter

(*Percina kusha*) is presented in the SSA report.

The bridled darter is a small freshwater fish native to the upper Coosa River basin in Georgia and Tennessee. This fish's current distribution includes the main channel of the Conasauga River in Murray and Whitfield Counties, Georgia, and Bradley and Polk Counties, Tennessee, Etowah River in Dawson and Lumpkin Counties, Georgia, Amicalola Creek in Dawson County, Georgia, Long Swamp Creek in Pickens County, Georgia, and Talking Rock Creek in Pickens County, Georgia. These are all considered small rivers with good water quality. It was also known to occur in short reaches of several tributaries to both the Conasauga and Etowah Rivers. Morphological variation exists between the darters in the Conasauga River and those in the Etowah River, but genetic studies do not conclude that they are separate species.

Adult bridled darters are about 3 in (4 cm) in length and are muted in color. Dark oval blotches are fused to form a lateral stripe. The lateral stripe merges with a dark stripe behind the eye and continues forward of the eye; these stripes resemble a horse's bridle and lend the species its common name. These darters are typically found in flowing pools and backwaters adjacent to runs in small rivers and lower reaches of tributary creeks. They are often found near submerged logs or vegetation and prefer a substrate of sand, gravel, cobble, and bedrock.

The bridled darter is a sight feeder that has been observed to pluck food from submerged objects as well as the water column by drift-feeding. When drift-feeding, it positions itself downstream of rocks, away from fast currents, and feeds on invertebrates that are washed downstream and thrust upward by turbulence. Feeding peaks in late afternoon before dusk. Stomach contents for individuals from the Conasauga River contained small mayfly nymphs and blackfly larvae.

Reproduction and spawning takes place approximately mid-April through mid-July.

Spawning sites are selected by females as they are followed by courting males. Competitive behavior between males for the site-selecting female has been observed, with the larger males attempting to chase away smaller males. In the Conasauga River, sneaker males (smaller males that join with a spawning pair and mate with the female) have been observed. Rapid quivering of the pair during spawning helps to bury fertilized eggs in sand. A spawning pair may undertake multiple spawning events at different locations. Females have the potential to produce up to 75 eggs per year, and their lifespan has been estimated to be approximately 3 years.

Summary of Biological Status and Threats

The Act directs us to determine whether any species is an endangered species or a threatened species because of any factors affecting its continued existence. The SSA reports document the results of our comprehensive biological status review for the holiday, bridled, and trispot darters, including an assessment of the potential stressors to the species. The SSA reports do not represent a regulatory decision by the Service on whether the species should be proposed for listing as endangered or threatened species under the Act. They do, however, provide the scientific basis that informs that decision, which involves the further application of standards within the Act and its implementing regulations and policies. The following is a summary of the key results and conclusions from the SSA reports; the full SSA reports can be found on the Southeast Region website at <https://www.fws.gov/southeast/> and at <http://www.regulations.gov> under Docket No. FWS-R4-ES-2017-0063.

Summary of Analysis

To assess viability for the holiday, bridled, and trispot darters, we used the three conservation biology principles of resiliency, representation, and redundancy (together, the 3Rs). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes); and redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, hurricanes). In general, the more redundant and resilient a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions. Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we used the 3Rs to evaluate individual life-history needs of all three darters. In the next stage, we assessed the historical and current condition of each species' demographics and habitat characteristics, including an explanation of how the species arrived at their current conditions. In the final stage of the SSA we made predictions about the species' responses to positive and negative environmental and anthropogenic influences. This process used the best available information to characterize viability as the ability of each species to sustain populations in the wild over time. We utilized this information to inform our regulatory decision in the 12-month findings.

To evaluate the current and future viability of the three darters, we assessed a range of conditions to allow us to consider the species' resiliency, representation, and redundancy. U.S. Geological Survey delineated all watersheds within the United States at several different scales

(or units) using a standardized system. Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to twelve digits based on six different levels of classification. For this analysis, the 10-digit Hydrologic Unit Codes (HUC 10s) were used as a spatial framework to delineate areas within the geographical range of each species for further analysis. Field collections were used to identify species presence within HUC10 watersheds. For holiday and bridled darters, populations were defined as occupied HUC10 watersheds and were used for analysis. Management units (MUs) were described for the trispot darter and are defined as one or more HUC10 watersheds that the species currently occupies. MUs were grouped using population genetics information and by expected management requirements.

To qualitatively assess resilience, we considered seven components that broadly relate to either the physical environment (“Habitat Elements”) or characteristics about the population specifically (“Population Elements”). Habitat elements consisted of an evaluation of physical habitat, connectivity, water quality, and hydrologic regime. Population elements consisted of an estimation of approximate abundance, the extent of occurrence (total length of occupied streams), and an assessment of occurrence complexity. Representation describes the ability of a species to adapt to changing environmental conditions over time. For these darters to exhibit high representation, resilient populations should occur in all ecoregions to which they are native, and maintain some level of connectivity between populations. These occupied physiographic provinces represent the ecological setting in which the darters have evolved. Redundancy for all three darters is characterized by having multiple resilient and representative populations distributed throughout its range. Furthermore, these populations should maintain natural levels of connectivity between them. Connectivity allows for immigration and emigration between populations and increases the likelihood of recolonization should a population become

extirpated. An overall resiliency condition was estimated by combining habitat and population elements. Population elements were weighted two times higher than habitat elements because they are considered direct indicators of population condition. Conditions were classified as “Low”, “Moderate”, or “High”.

After analyzing current conditions for each species, we described how current viability of the three darters may change over a period of 50 years. As with current conditions, we evaluated species viability in terms of resiliency at the population scale, and representation and redundancy at the species scale. In the SSA report, we described three plausible future scenarios and whether there will be a change, from current conditions, to resiliency, representation, or redundancy under each scenario. These scenarios capture the range of likely viability outcomes that the darters will exhibit by the end of 2070. The future scenarios differ in two main elements of predicted change: urbanization and climate. To forecast future urbanization, we considered future scenarios that incorporate the SLEUTH (Slope, Land use, Excluded area, Urban area, Transportation, Hillside area) model. This model simulates patterns of urban expansion that are consistent with spatial observations of past urban growth and transportation networks. Regarding climate, the Intergovernmental Panel on Climate Change utilized a suite of alternative scenarios in the Fifth Assessment Report to make near-term and long-term climate projections. In our assessments, we used these projections to help understand how climate may change in the future and what effects may be observed that impact the three darter species.

Trispot Darter

For our analysis we considered four extant MUs: Little Canoe Creek Basin, Ballplay Creek Basin, Conasauga River Basin, and Coosawattee River Basin. Genetic research has defined distinct trispot darter populations in Little Canoe Creek, Ballplay Creek, and Conasauga River. It is unknown if trispot darters in the Coosawattee River basin are genetically distinct; however, we analyzed it as a separate MU because this river would require a distinct management strategy due to hydroelectric operations at Carters Dam. Historical collections of the trispot darter are known from Cowans Creek, a tributary to Spring Creek, which is in turn a tributary to the Coosa River, and Johns and Woodward Creeks, tributaries to the Oostanaula River. Currently, the trispot darter occupies approximately 20 percent of its historically known range.

Current Condition of Trispot Darter

Of the four current MUs for the trispot darter, one has resiliency ranked as “moderate,” and three have resiliency ranked as “low” in the analysis (see Table 2 below). For example, the Little Canoe Creek MU is expected to have a moderate resiliency to stochastic events because water quality is low, the abundance is qualitatively low, the occurrence complexity is high, Coosa River reservoirs remove connectivity to other MUs, and the extent of the occupied habitat is small. The Conasauga River MU has “low” resiliency due to low water quality in the middle and lower river, low abundance of fish per collection record, a small and reduced population, and overall simple occurrence spatial arrangement. A full analysis for each unit’s resiliency can be found in the SSA report.

Table 2. Current species resiliency summary of the trispot darter.

	Approximate Abundance	Occurrence Extent	Occurrence Complexity	Physical Habitat	Connectivity	Water Quality	Hydrologic Regime	Overall Condition
<i>Little Canoe Creek</i>	Low	Low	High	Low	Low	Low	Low	Moderate
<i>Ballplay Creek</i>	Low	Low	Low	Low	Low	Low	Low	Low
<i>Conasauga River</i>	Low	Low	Low	Low	Moderate	Low	Low	Low
<i>Coosawattee River</i>	Low	Low	Low	Moderate	Moderate	Low	Low	Low

Holiday Darter

For our analysis we considered seven populations: Conasauga River, Talking Rock Creek, Ellijay River, Mountaintown Creek, Amicalola Creek, Etowah River, and Shoal Creek.

Current Condition of Holiday Darter

Six of the seven populations for holiday darter are estimated to have low resiliency. The exception is Amicalola Creek, where the fish is still found in 80 percent of the watershed that it occupied historically, and because it is known to occur in Amicalola Creek, Little Amicalola Creek, Cochran Creek, and Gab Creek, it has a moderate spatial occurrence complexity. The habitat elements were also ranked as moderate for Amicalola Creek, giving that population an overall condition of moderate. By comparison, the habitat elements were also moderate or high for the Etowah River, but this population had low population element rankings, leading to an estimate of low overall resiliency. A full analysis for each population's resiliency can be found in the SSA report.

Connectivity is an important aspect of representation because it provides for the exchange of novel and beneficial adaptations and migration to more suitable habitat (should it be necessary). Currently, all historically occupied ecoregions continue to be occupied by holiday darters, so we can conclude that all known genetic, morphological, and behavioral variability are still represented across the range. However, connectivity is reduced for the species range-wide. Dams have completely isolated the seven populations into four groups. The upper Etowah River-Amicalola Creek populations are isolated by Alatoona Dam; the Talking Rock Creek population is isolated by Carters Re-regulation Dam; and the Ellijay River and Mountaintown Creek populations are isolated by Carters Dam. The Conasauga River and Holly Creek populations are prevented from dispersing to the other populations by those same dams. The

Shoal Creek population is isolated by large dams on the Coosa River. Where dams do not fragment habitat, long reaches of unoccupied habitat are present between populations, indicating that migration between populations is uncommon or unlikely. Finally, all populations of holiday darter exist on the periphery of the Coosa River basin and have likely reached the upstream limits for the species. It is unlikely that individuals within a population will be able to migrate further upstream if necessary due to changes in environmental conditions, further decreasing the ability of the species to adapt to changing environmental conditions.

We estimate that the holiday darter currently may have low adaptive potential due to limited representation in six occupied watersheds, decreased connectivity, and confinement to upper reaches of occupied watersheds. Overall representation is considered to be low.

Redundancy is characterized by having multiple resilient and representative populations distributed throughout its range. Because all but one population of holiday darter exhibit low resiliency, the species is considered to also have low redundancy. All populations have experienced some declines, may have low numbers, or have low spatial complexity.

Redundancy is present within the Coosawattee River, with three populations still extant, but is still classified as “low” due to low resiliency of three populations.

In the occupied areas of the Conasauga and Etowah Rivers, the majority of the records for the species are on U.S. Forest Service (USFS) land, which is noted for having good water quality and suitable habitat for holiday darters. For our analysis, we gave populations low resilience if they had poor population elements, even if the habitat elements were moderate or high. Second, we declined to consider the species to have better than low representation and redundancy if the populations didn't have better than low resiliency. Inconsistent survey methodologies and lack of standard collection records also creates uncertainty in any analysis of

trends or the ability to compare data across years. The best available data does not indicate a declining trend in abundance, and it is likely that the low abundance (and, therefore, low resiliency) indicated in our analysis is due to the species being naturally rare and difficult to detect.

Table 3. Current species resiliency summary of the holiday darter.

	Approximate Abundance	Occurrence Extent	Occurrence Complexity	Physical Habitat	Connectivity	Water Quality	Hydrologic Regime	Overall Condition
<i>Conasauga River</i>	Low	Low	Low	Moderate	High	Moderate	Moderate	Low
<i>Talking Rock Creek</i>	Low	Low	Low	Moderate	High	Low	Moderate	Low
<i>Ellijay River</i>	Low	Low	Low	Moderate	Moderate	Low	Low	Low
<i>Mountaintown Creek</i>	Low	Low	Low	Moderate	Moderate	Moderate	Moderate	Low
<i>Amicalola Creek</i>	Moderate	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate
<i>Etowah River</i>	Low	Low	Low	Moderate	High	Moderate	High	Low
<i>Shoal Creek</i>	Low	Low	Low	Moderate	Low	High	Moderate	Low

Bridled Darter

For our analysis of the bridled darter we considered six populations: Conasauga River, Holly Creek, Talking Rock Creek, Long Swamp Creek, Amicalola Creek, and the Etowah River.

Current Condition of Bridled Darter

All six populations of bridled darter were classified as having low resiliency. Although habitat conditions were moderate or high for many creeks, the low population elements (abundance, extent, and complexity) caused the overall resiliency to be low. Currently, all historically occupied ecoregions are occupied, and all historically occupied watersheds are considered extant. Although populations that exhibit the known genetic, morphological, and behavioral variability are currently extant, they do not exhibit high resiliency, and representation is therefore classified as low. Dams have completely isolated the six populations into three groups. The upper Etowah River-Amicalola Creek-lower Longswamp Creek populations are isolated by Alatoona Dam, and the Talking Rock Creek population is isolated by Carters Re-regulation Dam. The Conasauga River and Holly Creek populations are prevented from dispersing in to the other populations by those same dams. Where dams do not fragment habitat, long reaches of unoccupied habitat are present between populations, indicating that migration between populations is uncommon or unlikely. Redundancy for the bridled darter is characterized by having multiple resilient and representative populations distributed throughout its range. Because all populations of bridled darter exhibit low resiliency, the species is considered to also have low redundancy. All populations have experienced declines in extent of occupied habitat, are found in low numbers, or have low spatial complexity with reduced connectivity.

In the occupied areas of the Conasauga and Etowah Rivers, the majority of the records for the species are on USFS land, which is noted for having good water quality and suitable habitat for bridled darters. For our analysis, we gave populations low resilience if they had poor population elements, even if the habitat elements were moderate and high. Second, we declined to consider the species to have better than low representation and redundancy if the populations didn't have better than low resiliency. Inconsistent survey methodologies and the lack of standard collection records creates uncertainty in any analysis of trends or the ability to compare data across years. The best available data does not indicate a declining trend in abundance, and it is likely that the low abundance (and, therefore, low resiliency) indicated in our analysis is due to the species being naturally rare and difficult to detect.

Table 4. Current species resiliency summary of the bridled darter.

	Approximate Abundance	Occurrence Extent	Occurrence Complexity	Physical Habitat	Connectivity	Water Quality	Hydrologic Regime	Overall Condition
<i>Conasauga River</i>	Low	Low	Low	Moderate	High	Low	Moderate	Low
<i>Holly Creek</i>	Moderate	Low	Low	Moderate	High	Low	Moderate	Low
<i>Talking Rock Creek</i>	Low	High	Low	Moderate	Low	Low	Moderate	Low
<i>Long Swamp Creek</i>	Low	Low	Low	Low	Low	Low	Low	Low
<i>Amicalola Creek</i>	Moderate	Low	Low	Moderate	Moderate	Moderate	Moderate	Low
<i>Etowah River</i>	Low	Low	Low	Moderate	High	Moderate	High	Low

Risk Factors Influencing Viability for Trispot, Holiday, and Bridled Darters

As required by the Act, we considered the five factors in assessing whether the three species meet the definition of threatened or endangered species. A multitude of natural and anthropogenic factors may impact the status of species within aquatic systems. The largest threats to the future viability of the trispot, holiday, and bridled darters involve habitat degradation from stressors influencing four habitat elements: water quality, water quantity, instream habitat, and habitat connectivity (Factor A). All of these factors are exacerbated by the effects of climate change (Factor E). A brief summary of these primary stressors is presented below; for a full description, refer to chapter 4 of the SSA reports for each species.

Hydrologic Alteration

Hydrologic alteration in this system has two components: increases in storm flow frequency and intensity and a decrease in base flows, which together create a “flashy” hydrologic regime. Activities that lead to hydrologic alteration include reservoir construction and operation, water withdrawals, and an increase in impervious surfaces. In a natural forested system, most rainfall soaks into the soil and is carried into nearby streams via subsurface flow. Some evaporates or transpires, and a relatively small amount becomes surface runoff. In an urbanized system with high levels of impervious cover, such as roads, parking lots, and rooftops, this cycle is altered; most stormwater hits impervious surfaces and becomes runoff, which then is channeled quickly to streams via stormwater drain pipes or ditches. Relatively little infiltrates into the soil. As a result, storm flows in the receiving stream are higher and more frequent, although briefer in duration, and base flows are lower. The storm discharge of urban streams can be twice that of rural streams draining a watershed of similar size, and the frequency of channel-forming events can be ten times that of pre-development conditions. These flashy stream flows

and frequent, smaller high-flow events negatively affect structural habitat on which the species depends. Increases in flow frequency or intensity can result in channel widening through bank erosion or deepening to accommodate the additional discharge. This results in increased downstream sedimentation and unstable beds, both of which degrade channel complexity, feeding, and refugia habitat for fish species. Increased storm flows, in addition, can cause physical washout of eggs and larval fishes, stress on adults, and negatively alter the stream's food web, affecting many fish species. There is also a decrease in channel complexity and a reduction in in-stream cover and natural substrates like boulders, cobble, and gravel. Hydrologic alteration can also lead to other stressors that negatively affect fish, such as sedimentation and a loss of connected suitable habitat.

Sedimentation

Sedimentation can affect fish species by degrading physical habitat used for foraging, sheltering, and spawning; altering food webs and decreasing stream productivity; forcing fish to change their behaviors; and even injuring or killing individual fish. Chronic exposure to sediment has been shown to have negative impacts to fish gills, which in addition to causing gill damage can possibly reduce growth rates. Sedimentation causes reduced visibility, impacting fishes' abilities to feed and communicate.

A wide range of activities can lead to sedimentation within streams, including agriculture, construction activities, stormwater runoff, unpaved roads, some forestry activities if certified best management practices are not used, utility crossings, and dredging. Historical land use practices have substantially altered hydrological and geological processes such that sediments continue to be input into streams for several decades after those activities cease. Examples of these activities occurring with the range of these species include: urban impacts in the Springville, Alabama, and

Dalton, Georgia, areas; agricultural practices in the Conasauga River basin; and livestock access to streams in the Little Canoe Creek watershed.

Reduced Connectivity

Connectivity is a species' ability to disperse to and from habitat patches. Excess groundwater withdrawal can contribute to reduced connectivity if sections of streams become dry for parts of the year. Dams and reservoirs reduce connectivity by creating a physical barrier between fish populations and changing habitat from flowing streams to standing water, which is not suitable habitat for these three darters. Road crossings are also more prevalent in highly populated urban areas, and some road crossings have impassable culverts that reduce connectivity.

Loss of Riparian Vegetation

Loss of riparian vegetation means the removal of natural plant communities from the riparian zone of rivers and streams. Removal of riparian vegetation can destabilize stream banks, increasing sedimentation and turbidity; increase the contaminants and nutrients that enter the water from runoff; increase water temperatures and light penetration, which also increases algae production; and alter available habitat by reducing woody plant debris and leaf litter, which in turn decreases overall stream productivity. These fish have adapted to occupy habitats that are surrounded by vegetation, which moderates temperature by blocking solar radiation; provides a source for terrestrial plant material that forms the base of the food web and provides shelter and foraging habitat for the fishes; and helps to maintain clear, clean water and substrate through filtration. Loss of riparian vegetation decreases habitat suitability for the trispot, holiday, and bridled darters. Removal of riparian vegetation has occurred where urban and agricultural

activities are prevalent such as increases in development in Dalton, Chatsworth, and Ellijay, and row crop and pastures in the Conasauga basin.

Contaminants

Contaminants, including metals, hydrocarbons, pesticides, and other potentially harmful organic and inorganic compounds, can be toxic to fish and are common in urban streams including those within the range of these three darters. Pesticides are frequently found in streams draining agricultural lands, with herbicides being the most commonly detected. Pesticides also are heavily used in urban and suburban areas, and many of these find their way into streams and groundwater. The contamination of the Coosa River with polychlorinated biphenyl (PCBs) has been attributed to the General Electric facility in Rome, Georgia. Although the facility closed in 1998, contaminated sediments are still documented there. In the Coosawattee River, PCBs are also listed as a source of impairment caused by nonpoint sources. These chemicals have toxic effects to the endocrine system, nervous system, reproductive system, blood, skin, and liver of animals and have likely impacted these three darters in the Coosa and Coosawattee Rivers.

Pesticides and herbicides are frequently found in streams draining agricultural land uses, with herbicides being the most commonly detected. Many agricultural streams still contain dichlorodiphenyltrichloroethane (DDT) and its degradation products. Glyphosates and other inert ingredients found in Roundup can be toxic to fish and other aquatic organisms, causing stress and reduced fitness; Roundup use within the range of these species is prevalent and increasing due to the adoption of “Roundup Ready” crops.

Agriculture

Agriculture is another predominant land use within the range of all three darters. Livestock grazing is prevalent in some areas, and poultry farming is also common.

Poultry Litter: Poultry litter is a mixture of chicken manure, feathers, spilled food, and bedding material that frequently is used to fertilize pastureland or row crops. Each poultry house has an estimated ability to produce up to 100 tons of litter a year. Surface-spreading of litter results in runoff from heavy rains carrying phosphorus and nitrogen from manure into nearby streams. Additionally, repeated or over application of poultry litter can result in phosphorus buildup in the soil. Excess phosphorus and nitrogen in stream systems increases blue-green algae and undesirable aquatic plants that rob water of oxygen, causing fish kills. Endocrine disruptors, such as estrogen, from poultry litter have been identified as a significant stressor to the Conasauga River basin. Estrogens have been found in water and sediment samples within the watershed at concentrations high enough to be disruptive to the endocrine system in fish. Increased levels of estrogens affect reproductive biology and result in reduced breeding success. In a recent study of endocrine disruptors on fishes in the Conasauga River, approximately 7.5 percent of male fishes surveyed were found to have female cells in male reproductive organs.

Livestock access to streams: On many farms, livestock is grazed on pastures adjacent to streams and rivers and livestock is allowed free access to the water. Livestock accessing riparian buffers and, subsequently, the stream proper, leads to habitat destruction and decreased water quality. Livestock can destabilize stream banks, which as discussed above creates increased sediment loads within these small systems. Livestock farming is often confined to the river valleys within the upper Coosa River basin; therefore, on many cattle farms, livestock is grazed on pastures adjacent to streams and rivers, and in some instances livestock is allowed free access to the water. Livestock is produced in every county with streams occupied by the bridled and holiday darters.

Urbanization

Urbanization refers to a change in land cover and land use from forests or agriculture to increased density of residential and commercial infrastructure. Urbanization includes a wide variety of stressors on aquatic systems that affect water quantity, water quality, channel structure, and connectivity. Therefore, urbanization is anticipated to increase the magnitude of nearly all other stressors, and urbanization is expected to affect the darters across their range due to their known localities occurring in close vicinity to the growing Atlanta metropolitan area, Chattanooga, Birmingham, and intervening areas with growing human populations and increasing development.

Weather Events

Weather events that affect stream flows are considered to be most relevant to these species. Broadly, these events include extreme storms and droughts. Increased flows can cause physical washout of eggs and larval fishes, stress on adults, and alter the production in a stream. Within the range of these darters, extreme flows associated with hurricanes have been reported to have negative effects on stream fish populations. Reduced baseflows due to droughts can cause population declines, habitat loss, reduced water quality (decreased dissolved oxygen and temperature alteration) leading to death, crowding of individuals leading to stress, and decreased reproduction in stream fish populations. Climate models for the southeastern United States project that average annual temperatures will increase, cold days will become less frequent, the freeze-free season will lengthen by up to a month, temperatures exceeding 95 degrees Fahrenheit will increase, heat waves will become longer, and the number of category 5 hurricanes will increase. While these climate models predict wide variability in weather patterns into the future, they suggest that the region will be subjected to more frequent large storms (hurricanes) as well as low flows from droughts.

Other Stressors

In our analysis of the factors affecting these species, we found no evidence of population- or species-level impacts from overutilization for commercial, recreational, scientific, or educational purposes. Also, there was no evidence of any impacts due to disease or predation.

Conservation Actions

Trispot Darter

The trispot darter is recognized by Alabama, Georgia, and Tennessee as a species of concern. This species is listed as Priority 2/High Conservation Concern by the State of Alabama, endangered by the State of Georgia, and threatened by the State of Tennessee. Priority watersheds within the range of the trispot darter have been designated as Strategic Habit Units by the Alabama Rivers and Streams Network. The Strategic Habit Unit project was developed for species restoration and enhancement. Alabama is conducting an analysis and the results are intended to contribute to restoration projects that will improve habitat and water quality for at risk and listed species. The Atlantic Coast Conservancy holds a tract of land within Ballplay Creek that could offer some protection in the watershed. Natural Resources Conservation Service's Working Lands for Wildlife partnership within the basin will help farmers develop and implement strategies to improve water quality.

Holiday Darter

The holiday darter is recognized by Alabama, Georgia, and Tennessee as a species of concern. It is listed as Priority 1/Highest Conservation Concern by the State of Alabama, endangered by the State of Georgia, and threatened by the State of Tennessee. In general, protections accorded to the holiday darter by the States prohibit direct exploitation of the species.

Some populations of holiday darter are known from watersheds in which a substantial percentage of lands are owned and managed by the USFS. These populations are found in the Conasauga River, upper Etowah River, and Shoal Creek. In the Conasauga River and Shoal Creek, the majority of current records for the holiday darter are within the boundary of USFS lands. Cherokee National Forest in Tennessee, Chattahoochee National Forest in Georgia, and Talladega National Forest in Alabama own and manage natural resources in occupied watersheds in those portions of the holiday darter's range. Management prescriptions implemented by the USFS in areas that overlap with the range of the holiday darter are expected to benefit the species. Specifically, 4.5 miles (mi) (7.2 kilometers (km)) of the Conasauga River is eligible for Congressional Wild River designation and is managed to protect and perpetuate the features that led to the eligibility status. The river is also recognized for its aquatic biodiversity by the USFS, and management strategies employed by both Cherokee and Chattahoochee National Forests within the watershed include designated wilderness areas, recommended wild river, recommended recreational river, black bear habitat management, restoration and maintenance of rare communities, restoration and management of old growth characteristics, and scenic corridors and sensitive viewsheds. These management strategies, which emphasize natural forest communities and water quality are expected to benefit holiday darter within the Conasauga River watershed. The Chattahoochee National Forest management prescriptions within the upper Etowah River also broadly emphasize and promote natural plant communities and so are expected to benefit holiday darter within this watershed. Standards outlined in the Revised Land and Management Plan for National Forests in Alabama (2004) generally protect water and habitat quality in streams. Direct observations of Shoal Creek have found the stream to have

good water quality with high levels of dissolved oxygen, stable pH levels, and low sedimentation, confirming the benefits of USFS management strategies to holiday darter habitat.

Approximately 13.6 mi (21.9 km) of Amicalola Creek are bounded by lands owned and managed by the State of Georgia. Georgia's stated goals for this area are maintenance or enhancement of populations of sensitive species and management of riparian areas to benefit water quality, aquatic resources, and aesthetics. We expect that this provides some benefit to holiday darters in that location. Additionally, approximately 488 acres (ac) (197 hectares (ha)) of these lands were purchased with the assistance of a Recovery Land Acquisition Grant that prioritized the conservation of aquatic resources and species. Therefore, it is anticipated that State ownership and management within the Amicalola Creek watershed will benefit the long-term survival of holiday darters.

Within the Conasauga River basin, Natural Resources Conservation Service has begun a Working Lands for Wildlife project that provides technical and financial assistance to help landowners improve water quality and help producers plan and implement a variety of conservation activities or practices that benefit aquatic species. Holiday darter may benefit in the future from water quality improvements in portions of the Conasauga River that are affected by agricultural practices as a result of the Working Lands for Wildlife project.

Priority watersheds within the range of the holiday darter have been designated as Strategic Habit Units by the Alabama Rivers and Streams Network. The Strategic Habit Unit project was developed for species restoration and enhancement. Watersheds occupied by holiday darter that have been designated as Strategic Habit Units are the Choccolocco Creek watershed (which includes the Shoal Creek populations) and the Oostanaula River watershed (which includes the Conasauga and Coosawattee River populations).

Bridled Darter

The bridled darter is recognized by Georgia and Tennessee as a species of concern. It is listed as endangered by the State of Georgia. In general, protections accorded to species that are listed by the States prohibit their direct exploitation.

Some populations of bridled darter are known from watersheds in which a substantial percentage of lands are owned and managed by the USFS. These populations are found in the Conasauga River and upper Etowah River. In the Conasauga River, the majority of current records for the bridled darter are within the proclamation boundary of USFS lands. Cherokee National Forest in Tennessee and Chattahoochee National Forest in Georgia own and manage lands and natural resources in occupied watersheds in those portions of the bridled darter's range. Management prescriptions implemented by the USFS in areas that overlap with the range of the holiday darter (see discussion above) are also expected to benefit the bridled darter.

Future Scenarios

For the purpose of this assessment, we define viability as the ability of the species to sustain populations in the wild over time. To address uncertainty associated with the degree and extent of potential future stressors and their impacts on species' requisites, the 3Rs were assessed using three plausible future scenarios. These scenarios were based, in part, on the results of urbanization and climate models that predict changes in habitat used by the trispot, holiday, and bridled darters. The models that were used to forecast both urbanization and climate change projected 50 years into the future. Using the best available data to forecast plausible future scenarios allows the Service to determine if a species may become an endangered species in the

foreseeable future. For more detailed information on these models and their projections, please see the SSA reports.

In the Status Quo scenario, current environmental regulations and policy, land use management techniques, and conservation measures remain the same over the next 50 years. We anticipate the current trend in greenhouse gas emissions to continue and moderate impacts from extreme weather events including intense drought, floods, and storm events to occur. In this scenario, rapid urbanization will continue at the current estimated rate for the Piedmont region of the southeastern United States, which will increase demand for water resources.

In the Best Case scenario, we predict wider adoption of conservation measures and policies, which involves watershed-scale conservation plans (Working Lands for Wildlife and watershed habitat conservation plans) and enacting a water policy for Alabama. In this scenario, we still expect rapid urban growth, albeit at a slower rate than under the other two scenarios. Under the Best Case scenario, rapidly growing urban areas would address environmental concerns and implement water conservation measures and green infrastructure. If implemented, these actions should lessen the demand on water resources (requiring fewer drinking water supply reservoirs) and minimize urban effects on streams. While large numbers of roads will still be constructed, under the Best Case scenario road crossings will be constructed that allow for fish passage. In this scenario we expect carbon emissions to peak before 2020 resulting in a lower probability of extreme weather conditions negatively affecting stream fishes, as compared to the Status Quo or Worst Case scenarios.

In the Worst Case scenario, we anticipate major negative effects in aquatic ecosystems as a result of rapid urbanization. In conjunction with rapid urban growth, we project that there will be a general lack of conservation measures and policies being implemented at the local, regional,

or national levels. Water demand will increase with population, and new reservoir construction will take place. In addition to rapid urbanization, carbon emissions are projected to continue to increase above the current levels in this scenario, resulting in a higher probability of extreme weather events that can negatively affect fish species. In areas that remain in agricultural use, there will be an increased amount of herbicide and poultry litter spreading and no protective measures implemented to address water quality issues. Under this scenario, we anticipate a general decline in available suitable habitat, population size, and abundance.

While we consider all three of these scenarios to be plausible, we acknowledge that each has a different probability of materializing at different times. A discrete range of probabilities was used to describe the likelihood that each scenario will occur. The Status Quo scenario was seen as “very likely” to occur in 10 years and “likely” to occur at 50 years. The Best Case and Worst Case scenarios were seen as less likely to occur (ranging from “unlikely,” “as likely as not,” and “likely”). Although they were part of the analysis, and the range of possibilities considered, because of the significantly lower probability of their occurrence they are not discussed in detail below. However, a table summarizing all scenarios for each species is provided below, and a full description of all three analyses can be found in the SSA report for each species.

Trispot Darter

In the Status Quo scenario, two populations of trispot darter, Ballplay Creek and Conasauga River, are expected to become extirpated, while the remaining two, Little Canoe Creek and Coosawattee River, are projected to persist in low resiliency condition. Because of the loss of darters predicted for Salacoa Creek, the fish will be found only in the Coosawattee River mainstem (no longer in any tributaries), making it more vulnerable to catastrophic events.

Redundancy decreases to two populations, which are completely isolated from one another due to the Weiss Dam. Genetic material will not be exchanged, reducing adaptive potential of the species. Summaries of the analysis of all three scenarios are provided in the table below.

Table 5. Future condition of the trispot darter by the year 2070 under three future scenarios.

Management Unit	Status Quo	Best Case	Worst Case
Little Canoe	Low	Moderate	Likely Extirpated
Ballplay	Likely Extirpated	Low	Likely Extirpated
Conasauga	Likely Extirpated	Moderate	Likely Extirpated
Coosawattee	Low	Moderate	Likely Extirpated

Holiday Darter

In the Status Quo scenario, three extant populations of holiday darter are expected to become extirpated, while four populations will continue to be extant 50 years in the future. This will decrease overall redundancy for the species as well as representation (the Coosawattee River will no longer be represented with the extirpation of the Talking Rock Creek, Ellijay River, and Mountaintown Creek populations). Physiographic representation is projected to decline over the next 50 years because the holiday darter's range is expected to contract to the upstream stream reaches that are owned and managed by State and Federal agencies within the Blue Ridge physiographic province. Representation is projected to remain within the Ridge and Valley of Alabama. Summaries of the analysis of all three scenarios are provided in the table below.

Table 6. Future condition of the holiday darter by the year 2070 under three future scenarios.

Population	Status Quo	Best Case	Worst Case
Conasauga River	Low	Moderate	Low
Talking Rock Creek	Likely Extirpated	Likely Extirpated	Likely Extirpated
Mountaintown Creek	Likely Extirpated	Likely Extirpated	Likely Extirpated
Ellijay River	Likely Extirpated	Low	Likely Extirpated
Amicalola Creek	Low	Moderate	Low
Etowah River	Low	Low	Low
Shoal Creek	Low	Low	Likely Extirpated

Bridled Darter

In the Status Quo scenario, two populations of bridled darter are expected to become extirpated (Talking Rock Creek and Long Swamp Creek). This will decrease overall redundancy for the species as well as representation (the Coosawattee River will no longer be represented with the extirpation of the Talking Rock Creek population). Physiographic representation is projected to decline over the next 50 years because the bridled darter's range is expected to contract to upstream stream reaches that are owned and managed by state and federal agencies within the Blue Ridge physiographic province. Summaries of the analysis of all three scenarios are provided in the table below.

Table 7. Future condition of the bridled darter by the year 2070 under three future scenarios.

Population	Status Quo	Best Case	Worst Case
Conasauga River	Low	Moderate	Low
Holly Creek	Low	Low	Likely Extirpated

Talking Rock Creek	Likely Extirpated	Low	Likely Extirpated
Long Swamp Creek	Likely Extirpated	Low	Likely Extirpated
Amicalola Creek	Low	Moderate	Low
Etowah River	Low	Moderate	Low

Findings and Determination

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we may list a species based on: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination.

The Act defines an endangered species as any species that is “in danger of extinction throughout all or a significant portion of its range” and a threatened species as any species “that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future.”

As required by the Act, we considered the five factors in assessing whether the three species are endangered or threatened throughout all of their ranges. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the species. We reviewed the petition, information available in our files, and other available published and unpublished information, and we consulted with recognized fish experts and other Federal and State agencies.

Bridled Darter

Stressors identified for the bridled darter include destruction of habitat due to urbanization, channel modification and loss of riparian vegetation, decreased water quality from agricultural activities, severity of climate events like storms and droughts, contaminants, and reduced connectivity from dams, road crossings, and culverts. While the species may be exposed to some or all of these stressors, it continues to persist in all of the streams it occupied historically. Our future scenarios were developed using models that predicted out 50 years; however, the short lifespan of the species (2–3 years) and the lack of evidence of threats directly impacting the species creates uncertainty when predicting the species' response to threats into the future. Forecasting beyond eight to ten generations would be speculative, and we do not have robust population data that could predict how the bridled darter may respond to threats beyond a 20-year timeframe. Accordingly, we have concluded that 20 years is the foreseeable future for the bridled darter.

While our analysis indicates a low abundance for the species currently, the best available data do not indicate a declining trend in abundance. Rather, it is likely that the low abundance (and, therefore, low resiliency) is due to the species being naturally rare and difficult to detect. The inconsistent survey methodology and lack of standard collection records also creates uncertainty in any analysis of trends or the ability to compare data across years. More importantly, within the occupied areas of the Conasauga and Etowah Rivers, the majority of the records for the species are on USFS land, which is noted for having good water quality and suitable habitat for bridled darters, and we expect this situation to continue into the foreseeable future. In fact, even 30 years beyond our foreseeable future timeframe, under the most likely

scenario, we expect that the bridled darter will still persist in four of six populations (Conasauga River, Holly Creek, Amicalola Creek, and Etowah River).

Our review of the best available scientific and commercial information indicates that the bridled darter is not in danger of extinction nor likely to become endangered within the foreseeable future throughout all of its range.

Because we determined that the bridled darter is not in danger of extinction or likely to become so in the foreseeable future throughout all of its range, we will consider whether there are any significant portions of its range in which the bridled darter is in danger of extinction or likely to become so. See the Final Policy on Interpretation of the Phrase “Significant Portion of Its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species” (79 FR 37577, July 1, 2014). We evaluated whether there is substantial information indicating that there are any portions of the species’ range: (1) that may be “significant,” and (2) where the species may be in danger of extinction. In practice, a key part of identifying portions appropriate for further analysis is whether the threats are geographically concentrated. The threats affecting the bridled darter are occurring throughout its entire range; therefore, there is not a meaningful geographical concentration of threats. As a result, even if we were to undertake a detailed “significant portion of its range” analysis, there would not be any portions of the species’ range where the threats are harming the species to a greater degree such that it may be in danger of extinction in that portion. Our review of the best available scientific and commercial information indicates that the bridled darter is not in danger of extinction or likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Therefore, we find that listing the bridled darter as an endangered or threatened species under the Act is not warranted at this time.

Holiday Darter

Threats previously identified for the holiday darter include destruction of habitat due to urbanization, channel modification and loss of riparian vegetation, decreased water quality from agricultural activities, severity of climate events like storms and droughts, contaminants, and reduced connectivity from dams, road crossings, and culverts. Our analysis shows that while the species may be exposed to some or all of these stressors, it continues to persist in all of the streams it occupied historically. While our future scenarios were developed using models that predicted out 50 years, the short lifespan of the species (3 years) and the lack of evidence of threats directly impacting the species creates uncertainty when predicting the species' response to threats into the future. Forecasting beyond eight to ten generations would be speculative, and we do not have robust population data to support a foreseeable future that could predict how the holiday darter may respond to threats beyond a 20-year timeframe. Accordingly, we have concluded that 20 years is the foreseeable future for the holiday darter.

While our analysis indicates a low abundance for the species, the best available data do not indicate a declining trend in abundance. Rather, it is likely that the low abundance (and, therefore, low resiliency) is due to the species being naturally rare and difficult to detect. The inconsistent survey methodology and lack of standard collection records also creates uncertainty in any analysis of trends or the ability to compare data across years. For example, nearly half of the collection records for holiday darters in the Conasauga River did not provide numeric data for the number of individuals collected, so they represent only presence data. In the occupied areas of the Conasauga and Etowah Rivers, the majority of the records for the species are on USFS land, which is noted for having good water quality and suitable habitat for holiday darters, and we expect this situation to continue into the foreseeable future. We expect that, for the

foreseeable future, the holiday darter will continue to have four to six populations, with only the Talking Rock Creek and Long Swamp Creek populations projected to be extirpated. We expect this scenario to continue under the ‘status quo’ scenario to the 50-year timeframe, 30 years beyond the foreseeable future. Even under the ‘worst case’ scenario, three populations are expected to remain extant into the future.

Our review of the best available scientific and commercial information indicates that the holiday darter is not in danger of extinction nor likely to become endangered within the foreseeable future, throughout all of its range.

Because we determined that the holiday darter is not in danger of extinction or likely to become so in the foreseeable future throughout all of its range, we will consider whether there are any significant portions of its range in which the holiday darter is in danger of extinction or likely to become so. See the Final Policy on Interpretation of the Phrase “Significant Portion of Its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species” (79 FR 37577, July 1, 2014). We evaluated whether there is substantial information indicating that there are any portions of the species’ range: (1) that may be “significant,” and (2) where the species may be in danger of extinction. In practice, a key part of identifying portions appropriate for further analysis is whether the threats are geographically concentrated. The threats affecting the holiday darter are occurring throughout its entire range; therefore, there is not a meaningful geographical concentration of threats. As a result, even if we were to undertake a detailed “significant portion of its range” analysis, there would not be any portions of the species’ range where the threats are harming the species to a greater degree such that it may be in danger of extinction in that portion. Our review of the best available scientific and commercial information indicates that the holiday darter is not in danger of extinction or

likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Therefore, we find that listing the holiday darter as an endangered or threatened species under the Act is not warranted at this time.

Proposal to List the Trispot Darter

Our analysis of the trispot darter's current and future conditions, as well as the conservation efforts discussed above, show that the population and habitat factors used to determine the resiliency, representation, and redundancy for trispot darter will continue to decline such that it is likely to become in danger of extinction throughout all or a significant portion of the range within the foreseeable future.

We considered whether the trispot darter is presently in danger of extinction and determined that proposing endangered status is not appropriate. The current conditions as assessed in the trispot darter SSA report show extant populations in four river systems (MUs), including 39 river mi (63 river km) of occupied habitat in the Conasauga River and the Little Canoe Creek population with moderate resiliency. As with the other two darter species, the best available data do not indicate a declining trend in abundance, and it is likely that the low abundance (and, therefore, low resiliency) indicated in our analysis is due to the species being naturally rare and difficult to detect. The inconsistent survey methodology and lack of standard collection records also creates uncertainty in any analysis of trends or the ability to compare data across years. The trispot darter continues to exhibit representation across its range, and extant populations remain across the range. While threats are currently acting on the species and many of those threats are expected to continue into the future, we did not find that the species is currently in danger of extinction throughout all of its range.

After reviewing our analysis of current and plausible future conditions of the trispot darter, we concluded that the resiliency, redundancy, and representation are being impacted by threats and the species has reduced viability. While our future scenarios were developed using models that predicted out 50 years, the short lifespan of the species (2–3 years) and the lack of evidence of threats directly impacting the species creates uncertainty when predicting the species' response to threats into the future. Forecasting beyond eight to ten generations would be speculative, and we do not have robust population data to support a foreseeable future that could predict how the trispot darter may respond to threats beyond a 20-year timeframe. Accordingly, we have concluded that 20 years is the foreseeable future for the bridled darter.

It is true that 30 years beyond our foreseeable future timeframe, the Status Quo scenario predicts the trispot darter will persist in both the Little Canoe and Coosawattee populations. However, considering this species' vulnerability to a loss of connectivity between breeding and non-breeding habitats and the effect that situation has on reproductive success, we expect negative impacts to the resiliency, redundancy, and representation of the species in the foreseeable future. The trispot darter's unique reproductive strategy of utilizing distinct areas of rivers and streams for breeding and non-breeding habitats makes the loss of connectivity especially detrimental to viability. In contrast to the holiday and bridled darters, a lack of protected lands within the current range of trispot darters creates more uncertainty regarding land use, threats, and the ability of these four populations to withstand the expected loss of one or two populations. This expected reduction in both the number and distribution of resilient populations is likely to make the species vulnerable to catastrophic disturbance, and thus put the species at an increased risk of extinction in the foreseeable future. Therefore, on the basis of the best available

scientific and commercial information, we find that listing the trispot darter is warranted and propose to list the species as threatened in accordance with sections 3(20) and 4(a)(1) of the Act.

Under the Act and our implementing regulations, a species may warrant listing if it is endangered or threatened throughout all or a significant portion of its range. Because we have determined that the trispot darter is threatened throughout all of its range, no portion of its range can be “significant” for purposes of the definitions of “endangered species” and “threatened species.” See the Final Policy on Interpretation of the Phrase “Significant Portion of Its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species” (79 FR 37577, July 1, 2014). While it is the Service’s position under this policy that undertaking no further analysis of “significant portion of its range” in this circumstance is consistent with the language of the Act, we recognize that the policy is currently under judicial review, so we also took the additional step of considering whether there could be any significant portions of the species’ range where the species is in danger of extinction. We evaluated whether there is substantial information indicating that there are any portions of the species’ range: (1) that may be “significant,” and (2) where the species may be in danger of extinction. In practice, a key part of identifying portions appropriate for further analysis is whether the threats are geographically concentrated. The threats affecting the species are throughout its entire range; therefore, there is not a meaningful geographical concentration of threats. As a result, even if we were to undertake a detailed “significant portion of its range” analysis, there would not be any portions of the species’ range where the threats are harming the species to a greater degree such that it may be in danger of extinction in that portion.

Critical Habitat for Trispot Darter

Section 4(a)(3) of the Act, as amended, and implementing regulations in 50 CFR 424.12, require that, to the maximum extent prudent and determinable, we designate critical habitat at the time the species is determined to be an endangered or threatened species. Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features

(a) essential to the conservation of the species, and

(b) which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary of the Interior that such areas are essential for the conservation of the species.

Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when any of the following situations exist: (1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. The regulations also provide that, in determining whether a designation of critical habitat would not be beneficial to the species, the factors that the Service may consider include but are not limited to whether the present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or whether any areas meet the definition of "critical habitat" (50 CFR 424.12(a)(1)(ii)).

As discussed above, we did not identify any imminent threat of take attributed to collection or vandalism for the trispot darter, and there is no indication that identification and

mapping of critical habitat is likely to initiate any such threats. Therefore, in the absence of finding that the designation of critical habitat would increase threats to the species, if there are benefits to the species from a critical habitat designation, a finding that designation is prudent is appropriate.

The potential benefits of designation may include: (1) Triggering consultation under section 7 of the Act, in new areas for actions in which there may be a Federal nexus where it would not otherwise occur because, for example, it is unoccupied; (2) focusing conservation activities on the most essential features and areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing people from causing inadvertent harm to the protected species. Because designation of critical habitat would not likely increase the degree of threat to the species and may provide some measure of benefit, designation of critical habitat is prudent for the trispot darter.

Our regulations (50 CFR 424.12(a)(2)) further state that critical habitat is not determinable when one or both of the following situations exists: (1) Information sufficient to perform required analyses of the impacts of the designation is lacking; or (2) the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat. For the trispot darter, a careful assessment of the economic impacts that may occur due to a critical habitat designation is ongoing, and we are in the process of working with the States and other partners in acquiring the complex information needed to perform that assessment. Until these efforts are complete, information sufficient to perform a required analysis of the impacts of the designation is lacking, and, therefore, we find designation of critical habitat for the trispot darter to be not determinable at this time.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and other countries, and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed and preparation of a draft and final recovery plan. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery plan also identifies recovery criteria for review of when a species may be ready for reclassification from

endangered to threatened (“downlisting”) or removal from the List of Endangered and Threatened Wildlife or Plants (“delisting”), and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outlines, draft recovery plans, and the final recovery plans will be available on our website (<http://www.fws.gov/endangered>), or from our Alabama Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands. If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the States of Alabama, Georgia, and Tennessee would be eligible for Federal funds to implement management actions that promote the protection or recovery of the trispot darter. Information on our grant programs that are available to aid species recovery can be found at: <http://www.fws.gov/grants>.

Although the trispot darter is only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for this species. Additionally, we invite you to submit any new information on these species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as an endangered or threatened species and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service.

Federal agency actions within the species' habitat that may require conference or consultation or both as described in the preceding paragraph may include, but are not limited to, management and any other landscape-altering activities on Federal lands administered by the Service, USFS, and National Park Service; issuance of section 404 Clean Water Act (33 U.S.C. 1251 et seq.) permits by the U.S. Army Corps of Engineers; and construction and maintenance of roads or highways by the Federal Highway Administration.

Under section 4(d) of the Act, the Service has discretion to issue regulations that we find necessary and advisable to provide for the conservation of threatened species. The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to threatened wildlife. The prohibitions of section 9(a)(1) of the Act, as applied to threatened wildlife and codified at 50 CFR 17.31, make it illegal for any person subject to the jurisdiction of the United States to take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these) threatened wildlife within the United States or on the high seas. In addition, it is unlawful to import; export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to employees of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving threatened wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.32. With regard to threatened wildlife, a permit may be issued for the following purposes: for scientific purposes, to enhance the propagation or survival of the species, for economic hardship, for zoological exhibition, for educational purposes, or for other special purposes consistent with the purposes of the Act. There are also certain statutory exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

Section 4(d) of the Act specifies that, for threatened species, the Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation of the species. This discretion includes authority to prohibit by regulation with respect to a threatened

species any act prohibited by section 9(a)(1) of the Act. At 50 CFR 17.31(a), the Service, by delegation from the Secretary, exercised this discretion to extend the take and other prohibitions set forth in section 9(a)(1) of the Act to all threatened species. The provisions at 50 CFR 17.31(c), however, also provide that the blanket prohibitions included in § 17.31(a) do not apply if the Service promulgates a rule under section 4(d) of the Act tailored to provide for the conservation needs of a specific threatened species. During the public comment period on this proposed rule, we are seeking comments on whether a section 4(d) rule is appropriate for trispot darter.

It is our policy, as published in the *Federal Register* on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of the species proposed for listing.

Activities that the Service believes could potentially harm the trispot darter and result in “take” include, but are not limited to:

- (1) Unauthorized handling or collecting of the species;
- (2) Destruction or alteration of the species’ habitat by discharge of fill material, dredging, snagging, impounding, channelization, or modification of stream channels or banks;
- (3) Destruction of riparian habitat directly adjacent to stream channels that causes significant increases in sedimentation and destruction of natural stream banks or channels;
- (4) Discharge of pollutants into a stream or into areas hydrologically connected to a stream occupied by the species;
- (5) Diversion or alteration of surface or ground water flow; and

(6) Pesticide/herbicide applications in violation of label restrictions.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Alabama Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Required Determinations

Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (1) Be logically organized;
- (2) Use the active voice to address readers directly;
- (3) Use clear language rather than jargon;
- (4) Be divided into short sections and sentences; and
- (5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act (NEPA), need not be prepared in connection with listing a species as an endangered or threatened species

under the Endangered Species Act. We published a notice outlining our reasons for this determination in the *Federal Register* on October 25, 1983 (48 FR 49244).

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. There are no tribal lands located within the range of this species.

References Cited

A complete list of references cited in the SSA report is available on the Internet at <http://www.regulations.gov> and upon request from the Alabama Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are the staff members of the Fish and Wildlife Service's Unified Listing Team and the Alabama Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

1. The authority citation for part 17 continues to read as follows:

AUTHORITY: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

2. Amend § 17.11(h) by adding an entry for “Darter, trispot” in alphabetical order under FISHES to read as set forth below:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
* * * * *	* * *			
FISHES				
* * * * *	* * *			
Darter, trispot	<i>Etheostoma trisella</i>	Wherever found	T	[Federal Register citation when published as a final rule]
* * * * *	* * *			

Dated: September 7, 2017.

James W. Kurth

Acting Director, U.S. Fish and Wildlife Service.

Billing Code 4333-15

[FR Doc. 2017-21350 Filed: 10/3/2017 8:45 am; Publication Date: 10/4/2017]